UNITED STATES
ENVIRONMENTAL PROTECTION AGENCY

PROPOSED PLAN
FOR THE

NL INDUSTRIES/TARACORP SITE
GRANITE CITY, ILLINOIS

January 10, 1990

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I. STATEMENT OF DOCUMENT'S PURPOSE

Section 117(a) of the Comprehensive Environmental Response, Compensation and Liability Act (CERCLA) requires publication of notice and a Proposed Plan for site remediation. The Proposed Plan must also be made available to the public for comment. In general, the Proposed Plan will: (1) provide background information on the site; (2) describe the alternatives considered for the site; (3) present the rationale for identification of a preferred alternative for the site; and (4) outline the public's role in the selection of a site remedy.

This Proposed Plan is issued to describe the alternatives for the NL Industries/Taracorp Superfund Site in Granite City, Illinois. This Plan summarizes the alternatives that the U.S. Environmental Protection Agency (U.S. EPA) has considered for the site. It also presents and evaluates the alternatives preferred by the U.S. EPA and the Illinois Environmental Protection Agency (IEPA). The alternatives summarized in this Proposed Plan are described in the Remedial Investigation/Feasibility Study (RI/FS) Report. The RI/FS, as well as any other pertinent documents in the administrative record (e.g. RI work plans, data, analyses, etc.), should be consulted for the in depth details on the development and evaluation of the alternatives considered.

Public input on the NL Industries/Taracorp site is an important contribution to the remedy selection process. Based on new information or public comment, U.S. EPA, in consultation with IEPA, may modify the preferred alternative or may select another of the response actions presented in this plan and the RI/FS Report. The public, therefore, is encouraged to review and comment on all the alternatives considered for the site.

II. BACKGROUND

The NL Industries/Taracorp Site is located within a heavily industrialized section of Granite City, Illinois, a community of approximately 40,000 people located across the Mississippi River from St. Louis, Missouri. Although the site is located within the Mississippi River Valley, it is not within the 100-year flood plain of any surface water. The location of the site is shown on Figure 1. Figure 2 presents the site plan, and Figure 3 shows the 100-year flood plain in the vicinity of the site.

The Taracorp Site is the location of a former secondary lead smelting facility. Metal refining, fabricating, and associated activities have been conducted at the site since before the turn of the century. Prior to 1903, the facilities at the site included a shot tower, machine shop, factory for the manufacture of blackbird targets, sealing wax, manufacture of mixed metals, refining of drosses, and the rolling of sheet lead. From 1903 to 1983 secondary lead smelting occurred on-site. Secondary smelting facilities included a blast furnace, a rotary furnace, several lead melting kettles, a battery breaking operation, a natural gas-fired boiler, several baghouses, cyclones and an afterburner. Secondary lead smelting operations were discontinued during 1983 and equipment dismantled.

In June of 1981, St. Louis Lead Recyclers, Inc. (SLLR) began using equipment on adjacent property owned by Trust 454 to separate components of the Taracorp waste pile. The objective was to recycle lead bearing materials to the furnaces at Taracorp and send hard rubber and plastic off-site for recycling. SLLR continued operations until June 1983 when it shut down its equipment. Residuals from the operation remain on Trust 454 property as does some equipment.

A State Implementation Plan for Granite City was published in September 1983 by the IEPA. The IEPA's Report indicated that the lead nonattainment problem for air emissions in Granite City was in large part attributable to emissions associated with the operation of the secondary lead smelter and lead reclamation activities conducted by SLLR. The IEPA procured Administrative Orders by Consent with Taracorp, St. Louis Lead Recyclers Inc., Stackorp, Inc., Tri-City Truck Plaza, Inc., and Trust 454 during March 1984. The Orders required the implementation of remedial activities relative to the air quality.

Due to Taracorp's Chapter 11 bankruptcy and NL's former ownership of the site, NL voluntarily entered into an Agreement and Administrative Order by Consent with the U.S. EPA and IEPA in May 1985 to implement a Remedial Investigation and Feasibility Study (RI/FS) for the site and other potentially effected areas. The U.S. EPA determined that the site was a CERCLA facility and it was placed on the National Priorities List on June 10, 1986.

III. SCOPE OF THE REMEDIAL INVESTIGATION/FEASIBILITY STUDY

Data gathered during the Remedial Investigation (RI) at the NL Industries/Taracorp Site indicate the following:

Areas of contamination (Refer to Figure 4):

Taracorp Pile

Located on the site is a pile composed primarily of blast furnace slag and battery case material. The volume of the pile is approximately 85,000 cubic yards. In addition, smaller piles immediately adjacent to the Taracorp pile, which were associated with the adjacent SLLR recycling operation, comprise approximately 2450 cubic yards. Tests conducted on the materials in the Taracorp pile and small SLLR piles demonstrate lead concentrations in the range of 1-28%. EP toxicity test results demonstrate that the waste pile materials are a characteristic hazardous waste under 40 CFR Part 261. In addition, on the surface of the pile are 25-35 containers holding solid wastes from the smelting operations which normally would be recycled. These containers remained after the smelting operations ceased in 1983.

Area 1 Battery Case Material and Soils

Area 1 consists of property owned by Trust 454 and Tri-City Trucking. These properties abut the Taracorp Site and were the subject of previous regulatory action. The limits of Area 1 are shown on Figure 4.

Trust 454 property contains a pile of battery case materials (SLLR pile) as well as unpaved areas. The SLLR pile contains approximately 3920 cubic yards in two general areas. The lead concentration range in this pile was 10-30%. EP toxicity analyses of the pile materials indicate that this material has characteristics similar to those of the Taracorp pile and should be managed as hazardous waste. Analyses of the unpaved area indicate a lead concentration at the surface of 9250 mg/kg.

Tri-City Trucking property includes a large unpaved area which is used to park and service trucks. Analyses of soils from areas around this property suggest that the soils contain lead concentrations on the order of 4000 mg/kg.

Surface Soils

Surface soil samples were collected from 50 locations not including Taracorp or Trust 454 properties. Generally samples were collected at depths of 0-3 and 3-6 inches below grade. With the exception of one anomalous value approximately 3200 feet from the site boundary, the results indicate that the soil concentration in surface soils (0-3 inches) within 1/4 mile of the site boundary were higher (514-4150 mg/kg) than those further from the site (200-500 mg/kg). Samples collected from the surface (0-3 inches) generally contained more lead (average 1160 mg/kg) than the deeper (3-6 inch) samples which averaged 560 mg/kg.

Eagle Park Acres

Eagle Park Acres includes some vacant land to which battery case material was previously hauled. The battery case material was used to fill a ditch on the property and a portion has been uncovered during subsequent excavation. The approximate volume of material and surrounding soil at Eagle Park Acres is 2700 cubic yards. Testing of the soil in this area indicated surface lead concentrations ranging from 63 mg/kg to 3280 mg/kg.

Venice Township Alleys

According to residents in the area, Venice Township hauled hard rubber case material to unpaved alleys in Venice Township. Tests conducted on these alleys resulted in a wide range of lead concentrations. Surface lead concentrations ranged from 200 mg/kg to 126,000 mg/kg. The estimated volume of battery case material and associated soil in these alleys is 670 cubic yards.

Groundwater

Background water quality at the site is characterized by elevated concentrations of dissolved solids, sulfates, and manganese. Collectively, a shallow and adjacent deep well located on the site demonstrated elevated concentrations (as compared to background) of sulfates, dissolved solids, arsenic, cadmium, manganese, nickel, and zinc. However, data from the shallow and deep wells located hydraulically downgradient demonstrated water quality similar to that in the background monitoring well. The possibility of a strong downward hydraulic gradient was identified during the RI.

Surface Water and Air

No surface water is present at the site; runoff away from the area of the Taracorp pile is limited to the property of Tri-City Trucking, Trust 454, and Taracorp.

Results of air monitoring for lead conducted by IEPA have indicated that emissions from the site are well within the National Ambient Air Quality Standard for lead since Taracorp ceased smelting operations in 1983.

Risk Assessment

The Risk Assessment identified two complete exposure pathways that exist at the site: direct contact with contaminated soils and waste materials, and inhalation of contaminated airborne dust.

Based on the above information, it was determined that remedial alternatives considered should address the Taracorp pile, Area 1 battery case materials and soils, nearby residential surface soils, battery case materials at Eagle Park Acres and in Venice Township Alleys, and the potential data gap presented by the possible strong downward hydraulic gradient near the site.

IV. FEASIBILITY STUDY SUMMARY

The U.S. EPA has identified and evaluated an array of remedial alternatives that could be used to remedy the NL Industries/Taracorp site. The alternatives presented here are those that survived preliminary screening to undergo detailed analysis. In evaluating these alternatives, U.S. EPA considered the following nine criteria:

1. Overall Protection of Human Health and Environment addresses whether or not a remedy provides adequate protection, and describes how risks are eliminated, reduced through treatment, engineering controls, or institutional controls.

2. Compliance with ARARs addresses whether or not a remedy will meet all of the applicable or relevant and appropriate requirements (ARARs) of other environmental statutes and/or provide grounds for invoking a waiver.

3. Long-term Effectiveness and Permanence refers to the ability of a remedy to maintain reliable protection of human health and the environment over time, once the remedial goals have been met.

4. Reduction of Toxicity, Mobility, or Volume is the anticipated performance of the treatment technologies a remedy may employ.

5. Short-term Effectiveness involves the period of time needed to achieve protection and any adverse impacts on human health and the environment that may be posed during the construction and implementation period until remedial goals are achieved.

6. Implementability is the technical and administrative feasibility of a remedy, including the availability of goods and services needed to implement the chosen solution.

7. Cost includes capital, and operation and maintenance (O&M) costs.

8. Support Agency Acceptance indicates whether, based on its review of the RI/FS and Proposed Plan, the support agency (IEPA) concurs, opposes, or has no comment on the preferred alternative.

9. Community Acceptance will be assessed in the Record of Decision following a review of the public comments received on the FS Report and the Proposed Plan.

The alternatives that underwent detailed analysis are briefly described below. Detailed descriptions of each analysis are presented in the FS report.

Alternative A - No Action

Monitoring:	Air Quality Monitoring; Ground Water Monitoring, Additional Deep Wells.
Institutional Controls:	Site Access Restrictions; Land Use Restrictions; Deed Restrictions; Sale Restrictions.

Estimated Total Remedial Costs: $475,110 Present Worth
Estimated Months to Implement: 6-12

The no action alternative (A) includes a group of activities that can be used to monitor contaminant transport. The sources considered potentially viable include air, surface soils, and groundwater. It includes institutional controls on the Taracorp property and other properties where residual concentrations do not meet Remedial Objectives. In addition, a minimum of one upgradient and three downgradient deep wells would be installed to monitor water quality in the lower portion of the aquifer; well nests or clusters would be employed wherever possible.

Alternative B

Taracorp Pile:	Multimedia Cap, Institutional Controls.
Taracorp Drums:	Off-Site Recovery at Secondary Lead Smelter.
SLLR Piles:	Excavate and Consolidate with Taracorp Pile.
Venice Alleys:	Asphalt or Sod Cover Based on Usage.
Eagle Park Acres:	Vegetated Clay Cap, Institutional Controls.
Area 1 Unpaved Surfaces:	Asphalt or Sod Cover Based on Usage.
Area 2 Unpaved Surfaces:	Asphalt or Sod Cover Based on Usage.
Area 3 Unpaved Surfaces:	Asphalt or Sod Cover Based on Usage.
Monitoring:	Air and Groundwater Monitoring, Additional Deep Wells, Contingency Plans.

Estimated Total Remedial Cost: $5,685,020 Present Worth
Estimated Months to Implement: 12-24

To implement Alternative B, drums containing lead drosses and other production by-products would be removed to an off-site secondary lead smelter for lead recovery. Wastes contained in the SLLR piles would be consolidated into the Taracorp pile; the consolidated pile would be graded and capped with a multimedia cap. Institutional controls such as site access restrictions, restrictive convents, deed restrictions, and property transfer restrictions would also be implemented.

Eagle Park Acres would be purchased and a vegetated clay cap in compliance with ARARs would be installed over the battery case material. Institutional controls such as site access restrictions, restrictive covenants, deed restrictions, and property transfer restrictions would also be implemented.

Venice Alleys would be covered in accordance with present usage. Asphalt would be applied to the portions subject to vehicular or pedestrian use; the remaining areas would be covered with 3 inches of topsoil followed by sod.

Unpaved portions of Areas 1, 2, and 3 (refer to Figure 4) would be covered in accordance with present usage. Asphalt would be applied to unpaved driveways and alleys; grassed or open areas would be covered with three inches of topsoil followed by sod. Removal of existing soils would be limited to driveway subgrade preparation; therefore, surface elevations would change somewhat depending on surface treatment. Any soil excavated would be transported to the Taracorp pile for use in grading prior to cap installation.

The air and groundwater monitoring included in the no action alternative would also be implemented as part of Alternative B.

Alternative C

Alternative C in the FS Report is nearly identical to Alternative D; therefore, Alternative C has been excluded from further consideration.

Alternative D

Taracorp Pile:	Multimedia Cap, Institutional Controls.
Taracorp Drums:	Off-Site Recovery at Secondary Lead Smelter.
SLLR Piles:	Excavate and Consolidate with Taracorp Pile.
Venice Alleys:	Excavate Case Material and Consolidate with Taracorp Pile. Restore Surfaces.
Eagle Park Acres:	Excavate Case Material and Consolidate with Taracorp Pile. Restore Surfaces.
Area 1 Unpaved Surfaces:	Excavate Soil and Consolidate with Taracorp Pile. Restore Surfaces.
Area 2 Unpaved Surfaces:	Excavate Soil and Consolidate with Taracorp Pile. Restore Surfaces.
Area 3 Unpaved Surfaces:	Excavate Soil and Consolidate with Taracorp Pile. Restore Surfaces.
Monitoring:	Air and Groundwater Monitoring, Additional Deep Wells, Contingency Plans.

Estimated Total Remedial Cost: $6,835,450 Present Worth
Estimated Months to Implement: 12-24

To implement Alternative D, drums containing lead drosses and other production by-products would be removed to an off-site secondary lead smelter for lead recovery. Wastes contained in the SLLR piles would be consolidated into the Taracorp pile; the consolidated pile would be graded and capped with a multimedia cap. Institutional controls such as site access restrictions, restrictive covenants, deed restrictions, and property transfer restrictions would be implemented.

Battery case material would be excavated from both Venice Alleys and Eagle Park Acres and transferred to the Taracorp pile. After preliminary sampling is conducted, any portion of the case material that is EP Toxic for lead will be removed to an off-site, RCRA compliant landfill or treated prior to placement in the Taracorp pile. These areas would be restored with either asphalt or sod, in accordance with current usage.

Unpaved portions of Areas 1, 2, and 3 would be excavated to a depth of three inches and restored with either asphalt or sod, in accordance with present usage. Excavated soil would be transported to the Taracorp pile for use in grading prior to cap installation.

The air and groundwater monitoring included in the no action alternative would also be implemented as part of Alternative D.

Alternative E

Taracorp Pile:	Multimedia Cap, Supplemental Liner, Institutional Controls.
Taracorp Drums:	Off-Site Recovery at Secondary Lead Smelter.
SLLR Piles:	Excavate and Consolidate with Taracorp Pile.
Venice Alleys:	Excavate Case Material and Consolidate with Taracorp Pile. Restore Surfaces.
Eagle Park Acres:	Excavate Case Material and Consolidate with Taracorp Pile. Restore Surfaces.
Area 1 Unpaved Surfaces:	Excavate Soil and Consolidate with Taracorp Pile. Restore Surfaces.
Area 2 through 8 Residential Surfaces:	Excavate Soil and Consolidate with Taracorp Pile. Restore Surfaces.
Monitoring:	Air and Groundwater Monitoring, Additional Deep Wells, Contingency Plans.

Estimated Total Remedial Cost: $20,566,242 Present Worth
Estimated Months to Implement: 36-48

To implement Alternative E, drums containing lead drosses and other production by-products would be removed to an off-site secondary lead smelter for lead recovery. An impermeable liner would then be installed on a section of Area 1 adjacent to the Taracorp pile. All soils in Area 1 with lead concentrations greater than 1000 ppm would be excavated prior to liner installation, with the excavated soil staged with the Taracorp pile. The liner would consist of 2 feet of clay, 1 foot of sand (secondary drainage layer), a 60 mil synthetic membrane, and 1 foot of sand (primary drainage layer). A primary and secondary leachate collection system (perforated PVC piping) would also be provided. Excavated soils from Areas 1 through 8 would be placed over the primary drainage layer as a base to protect the liner from damage. Following liner construction, waste materials from the Taracorp pile, SLLR pile, Eagle Park Acres, and Venice Alleys would be excavated, transported to, and placed on the liner. These wastes would be covered and graded with

soils excavated from the base of the former Taracorp pile. A multimedia cap would then be installed over the consolidated pile. All construction activities in Area 1 mentioned above would comply with any applicable flood plain construction permit requirements. Institutional controls such as site access restrictions, restrictive covenants, deed restrictions, and property transfer restrictions would also be implemented.

As discussed above, battery case material would be excavated from both Venice Alleys and Eagle Park Acres and transferred to the newly constructed liner. These areas would be restored with either asphalt or sod, in accordance with current usage.

Residential soils in Areas 2 through 8 (see Figure 5) with lead concentrations greater than 500 ppm would be excavated and restored with either asphalt or sod, in accordance with present usage. As stated above, excavated soil would be transported to the newly constructed liner and placed directly over the primary drainage layer, to protect the synthetic membrane from damage from heavy slag and debris.

Air and groundwater monitoring included in the no action alternative would be implemented as part of Alternative E.

Alternative F

Taracorp Pile:	Multimedia Cap, Supplemental Liner-Recovery of Plastic Battery Case Materials and Lead, Institutional Controls.
Taracorp Drums:	Off-Site Recovery at Secondary Lead Smelter.
SLLR Piles:	Excavate and Consolidate with Taracorp Pile.
Venice Alleys:	Excavate Case Material and Consolidate with Taracorp Pile. Restore Surfaces.
Eagle Park Acres:	Excavate Case Material and Consolidate with Taracorp Pile. Restore Surfaces.
Area 1 Unpaved Surfaces:	Excavate Soil and Consolidate with Taracorp Pile. Restore Surfaces.
Area 2 through 8 Residential Surfaces:	Excavate Soil and Consolidate with Taracorp Pile. Restore Surfaces.
Monitoring:	Air and Groundwater Monitoring, Additional Deep Wells, Contingency Plans.

Estimated Total Remedial Cost: $34,342,284 Present Worth
Estimated Months to Implement: 60-72

Alternative F is identical to Alternative E, with the exception of recycling a portion of the waste materials as described below.

Prior to transport to the newly constructed liner, waste materials in the Taracorp pile would be processed to recover plastic battery case material and smeltable lead. During the initial excavation, waste material would be visually segregated: excavations containing primarily slag would be transported directly to the adjacent liner; those containing significant amounts of plastic battery case material and smeltable lead would be transported to an on-site segregation unit. The commercially available unit would utilize flotation as a recovery mechanism. Recovered plastic would be shipped off-site for use as a raw material. Recovered lead and lead oxide would be shipped to a secondary smelter after drying. Residuals, including slag and rubber case material, would be transported to the liner.

Alternative G

Taracorp Pile:	Recovery of Plastic Battery Case Material and Lead, Disposal of Residuals in RCRA Landfill.
Taracorp Drums:	Off-Site Recovery at a Secondary Lead Smelter.
SLIR Piles:	Disposal in RCRA Landfill.
Venice Alleys:	Excavate Case Material, Disposal in RCRA Landfill. Restore Surfaces.
Eagle Park Acres:	Excavate Case Material, Disposal in RCRA Landfill. Restore Surfaces.
Area 1 Unpaved Surfaces:	Excavate and Restore. Disposal in RCRA Landfill.
Area 2 through 8 Residential Surfaces:	Excavate and Restore. Disposal in RCRA or Non-RCRA Landfill.
Monitoring:	Groundwater Monitoring, Additional Deep Wells, Contingency Plan.

Estimated Total Remedial Cost: $56,514,070 Present Worth
Estimated Months to Implement: 60-72

To implement Alternative G, drums containing lead drosses and other production by-products would be removed to an off-site secondary lead smelter for lead recovery. The remaining waste materials in the Taracorp pile would be excavated, processed to recover recyclable plastic, and disposed of in a RCRA landfill.

Processing would consist of visual segregation during initial excavations to separate non-plastic bearing wastes from wastes containing plastics. Non-plastic bearing waste would be transported directly to the RCRA

landfill; those containing significant amounts of plastic battery case material and smeltable lead would be transported to an on-site segregation unit. The commercially available unit would utilize flotation as a recovery mechanism. Recovered plastic would be shipped off-site for use as a raw material. Recovered lead and lead oxide would be shipped to a secondary smelter after drying. Residuals, including slag and rubber case material, would be transported to the RCRA landfill.

Battery case material would be excavated from both Venice Alleys and Eagle Park Acres and transported directly to the RCRA landfill. It is thought that these casings are primarily rubber and, therefore, not likely suitable for recycling. If significant amounts of plastic casings were excavated, however, they would be processed in the same fashion as the Taracorp pile casings. Venice Alleys and Eagle Park Acres surface areas would be restored with either asphalt or sod, in accordance with current usage.

Unpaved portions of Areas 1 through 8 would be excavated and restored with either asphalt or sod, in accordance with present usage. Excavated soil from Area 1 would be transported to a RCRA landfill; excavated soil from Areas 2 through 8 would be transported to a RCRA or non-RCRA landfill, based on the results of preliminary EP Toxicity tests for lead.

The groundwater monitoring included in the no action alternative would also be implemented as part of Alternative G. Long term air monitoring would not be required.

Alternative H

Taracorp Pile:	Multimedia Cap, Institutional Controls.
Taracorp Drums:	Off-Site Recovery at a Secondary Lead Smelter.
SLLR Piles:	Excavate and Consolidate with Taracorp Pile.
Venice Alleys:	Excavate Case Material and Consolidate with Taracorp Pile. Restore Surfaces.
Eagle Park Acres:	Excavate Case Material and Consolidate with Taracorp Pile. Restore Surfaces.
Area 1 Unpaved Surfaces:	Excavate Soil and Consolidate with Taracorp Pile. Restore Surfaces.
Areas 2 through 8 Residential Surfaces:	Excavate Soil and Consolidate with Taracorp Pile. Restore Surfaces.
Monitoring:	Air and Groundwater Monitoring, Additional Deep Wells, Contingency Plans.

Estimated Total Remedial Cost: $13,892,630 Present Worth
Estimated Months to Implement: 18-30

Alternative H, which was added by U.S. EPA and IEPA in an addendum to the draft FS Report is identical to Alternative D, with the exception that the scope of off-site soil and waste materials excavation is increased significantly as described below. NL Industries has indicated to U.S. EPA its objections to the increased scope of soil excavation in this alternative.

All soils in Area 1 with lead concentrations greater than 1000 ppm and residential soils in Areas 2 through 8 with lead concentrations greater than 500 ppm would be excavated and consolidated with the Taracorp pile. Surfaces would be restored with either asphalt or sod, in accordance with present usage.

V. U.S. EPA's PROPOSED PLAN

Based upon the information developed on the NL Industries/Taracorp Site, U.S. EPA's preferred alternative is Alternative H - Excavation of off-site soils and waste materials, Consolidation into Taracorp pile, RCRA cap, Recovery of drummed materials off-site at a secondary lead smelter, Air and groundwater monitoring and associated contingency plans. Refer to Figure 6 for final contours of the capped Taracorp pile and Figure 7 for a diagram of the RCRA-compliant, multimedia cap to be placed over the Taracorp pile, after consolidation.

ANALYSIS - NINE CRITERIA

Overall Protection - With the exception of the no action alternative, the treatment of Areas 4 through 8 in Alternative B, and the treatment of Areas 1 through 8 in Alternative D, all of the alternatives would provide adequate protection of human health and the environment. The preferred alternative includes the elimination of direct contact with and inhalation of soils and waste materials contaminated with lead at concentrations above levels which may present a risk to public health by: removal of Taracorp drums and off-site recovery at a secondary lead smelter; excavation, restoration, and consolidation with Taracorp pile of the SLLR pile, soils and waste materials with lead concentrations greater than 500 ppm in Eagle Park Acres, Venice Alleys, and residential areas in Areas 2 through 8; excavation, restoration, and consolidation of soils and waste materials in Area 1 with lead concentrations greater than 1000 ppm; and providing a multimedia cap over the Taracorp pile and providing institutional controls. The preferred alternative also includes installation of additional deep wells, air and groundwater monitoring plans, and contingency plans to be developed and implemented in the event that site-related contaminant levels in the air or groundwater exceed applicable standards.

Compliance with ARARs - Alternatives B through H would meet all Applicable or Relevant and Appropriate Requirements (ARARs) of Federal and State Environmental Laws except for State of Illinois General Use Water Quality Standards (35 IAC 302.208). These standards are applicable to groundwater beneath the site and are exceeded for sulfates, total dissolved solids, iron, manganese and zinc. The standards for these parameters were developed to ensure the aesthetic quality of water and concentrations in excess of the General Use standards for these parameters would not present a health concern. Cadmium was also present above the General Use standard during three rounds of sampling but not during the most recent sampling. The groundwater monitoring and additional deep well installation included in all alternatives will verify cadmium concentrations and monitor concentrations of all other parameters of concern. Alternatives E and F would be required to meet any applicable floodplain construction permit requirements, and care would have to be exercised with Alternatives E, F, and G to ensure that Taracorp pile excavation activities do not create exceedances of air ARARs.

Additionally, the consolidation of excavated contaminated soils in the residential areas around the site is included in alternatives D and H due to the fact that these areas are within a zone of continuous contamination created by the airborne deposition of lead from the smelter stack throughout its years of operation. Lead contamination is highest next to the smelter stack (on-site) and gradually decreases with increasing radial distance from the stack, and the nearest residential areas to be excavated are physically separated from the site boundary by one roadway, 16th Avenue. If future information indicates that such consolidation is not in compliance with RCRA ARARs, then excavated residential soils which are EP Toxic for lead will be taken off-site to a RCRA-compliant landfill or treated to appropriate contaminant levels prior to placement on the Taracorp pile.

Long-Term Effectiveness - Alternatives E, F, and G would provide good long-term effectiveness against direct contact with and inhalation of soils and waste materials containing lead concentrations above levels which may present a risk to public health, as well as an additional barrier against leaching of lead and other metals into the groundwater. The preferred alternative (i.e., Alternative H) would provide similar long-term effectiveness but would not provide the additional barrier against leaching metals; however, the groundwater does not represent a complete risk pathway at this site. With the exception of Areas 4 through 8, for which no remediation is provided, Alternative B would eliminate the risk of human exposure in off-site areas upon completion of remediation but would not provide long-term effectiveness in these areas due to maintenance requirements and the potential for uncontrolled excavation. With the exception of Areas 4 through 8, for which no

remediation is provided, Alternative D would provide good long-term effectiveness with respect to materials consolidated with the Taracorp pile; however, at Areas 1, 2, and 3, lead concentrations at 3 inches beneath the ground surface would remain at levels which may present a risk to public health. The no action alternative allows waste materials to remain in place and, thus, has poor long-term effectiveness.

Reduction of Toxicity, Mobility, or Volume - With the exception of the no action alternative, all alternatives provide a reduction of mobility of contaminants; the degree of mobility reduction provided, from least to greatest, is Alternative B, D, H, E, F, then G. The no action alternative does not provide any reduction of toxicity or volume, Alternatives B, D, H, and E provide a slight reduction of toxicity and volume by removal and recovery of Taracorp drums, and Alternatives F and G provide a slightly greater reduction of toxicity and volume by recycling some waste materials. The reduction of volume effected by Alternatives F and G has been calculated to be less than 10%, based on the quantity, nature and physical condition of recyclable materials in the Taracorp pile. Additionally, Alternatives F and G would produce a contaminated sludge as a result of precipitation of rinse waters used for recycling.

Short-Term Effectiveness - Implementation of Alternatives A and B would produce minimal short-term impacts to the community, workers, or the environment, as contaminated material would be left in place. Implementation of Alternatives D, E, F, G, and H could generate dust in residential and commercial areas, which would require monitoring and control. Alternatives E, F, and G include significant excavation at the Taracorp pile; the generated dust could impact the community, workers, and the environment. Control measures would be required. Alternatives F and G also include extensive manual handling of waste materials at the Taracorp pile; worker health and safety could be jeopardized through ingestion of and direct contact with lead containing materials.

The following periods of time are required to implement the remedial construction activities for each alternative:

Alternative	Time
A	6-12 Months
B, D	1-2 Years
H	1 1/2 - 2 1/2 Years
E	3-4 Years
F, G	5-6 Years

Implementability - Alternatives A, B, D, and H would utilize standard monitoring and construction techniques which would be readily implementable. The excavation of the Taracorp pile incorporated in Alternatives E, F, and G would require dust control measures. The segregation and recovery utilized by Alternatives F and G, however, would utilize equipment designed to handle batteries, not the slag and waste materials present at the Taracorp pile. In addition, the recovered products may not be suitable for recycling: the recovered plastic may not pass the TCLP test for lead, and the lead content of the recovered slag/dirt/lead mixture may not contain a high enough lead content to be acceptable to a secondary smelter.

Cost - The costs of each alternative are presented below:

Alternative	Capital Cost	O&M	Present Worth
A	$143,840	$21,550	$475,110
B	$5,142,390	$35,300	$5,685,020
D	$6,292,820	$35,300	$6,835,450
E	$20,023,612	$35,300	$20,566,242
F	$33,799,654	$35,300	$34,342,284
G	$56,432,600	$5,300	$56,514,070
H	$13,350,000	$35,300	$13,892,630

State Acceptance - The State of Illinois supports the preferred alternative.

Community Acceptance - Community acceptance of the preferred alternative will be evaluated after the public comment period and will be described in the Record of Decision for the Site.

The Preferred Alternative

The preferred alternative, Alternative H, would provide adequate protection of human health and the environment by eliminating direct contact with and inhalation of soils and waste materials contaminated with lead at concentrations above levels which may present a risk to public health. Although contaminated soils and waste materials would be consolidated on-site with the Taracorp pile, the RCRA cap and institutional controls will essentially eliminate the risks associated with these materials. The skilled labor and equipment necessary to construct the preferred alternative are currently available.

In summary, at this time, the preferred alternative represents the best balance among the criteria used to evaluate remedies. Based on the information available at this time, the U.S. EPA and IEPA believe the preferred alternative would be protective, would attain ARARs, would be cost-effective, would utilize solutions with long-term effectiveness and reduction of contaminant mobility to the maximum extent possible, and if implemented properly, would not result in any unacceptable short-term risks to public health and the environment.

VI. THE COMMUNITY'S ROLE IN THE SELECTION PROCESS

U.S. EPA solicits input from the community on the cleanup methods proposed for each Superfund response action. U.S. EPA has set a public comment period from January 10, 1990 through February 24, 1990 to encourage public participation in the selection process. The comment period includes a public meeting at which U.S. EPA, along with the IEPA, will present the FS report and the Proposed Plan, answer questions, and receive both oral and written comments.

The public meeting is scheduled for 7:00 p.m. on February 8, 1990 and will be held at:

Township Hall
2060 Delmar Avenue
Granite City, Illinois

Comments will be summarized and responses provided in the Responsiveness Summary section of the Record of Decision (ROD). The ROD is the document that presents U.S. EPA's final selection for cleanup. The public can send written comments to or obtain further information from:

Mary Ann Croce
Community Relations Coordinator
U.S. Environmental Protection Agency
Office of Public Affairs
230 South Dearborn Street
Chicago, Illinois 60604
(312) 886-1728

Toll free (800) 621-8431 between 9:00 and 4:30 p.m. Central Time

U.S. EPA and IEPA are soliciting public comments about the most acceptable way to clean up the NL Industries/Taracorp Site. The Proposed Plan and the RI/FS Reports and associated Addenda have been placed in the Information Repositories and Administrative Record for the site. The Administrative Record includes all documents such as work plans, data analyses, public comments, transcripts and other relevant material used in developing the remedial alternatives for the NL Industries/Taracorp Site. These documents are available for public review and copying at the following locations:

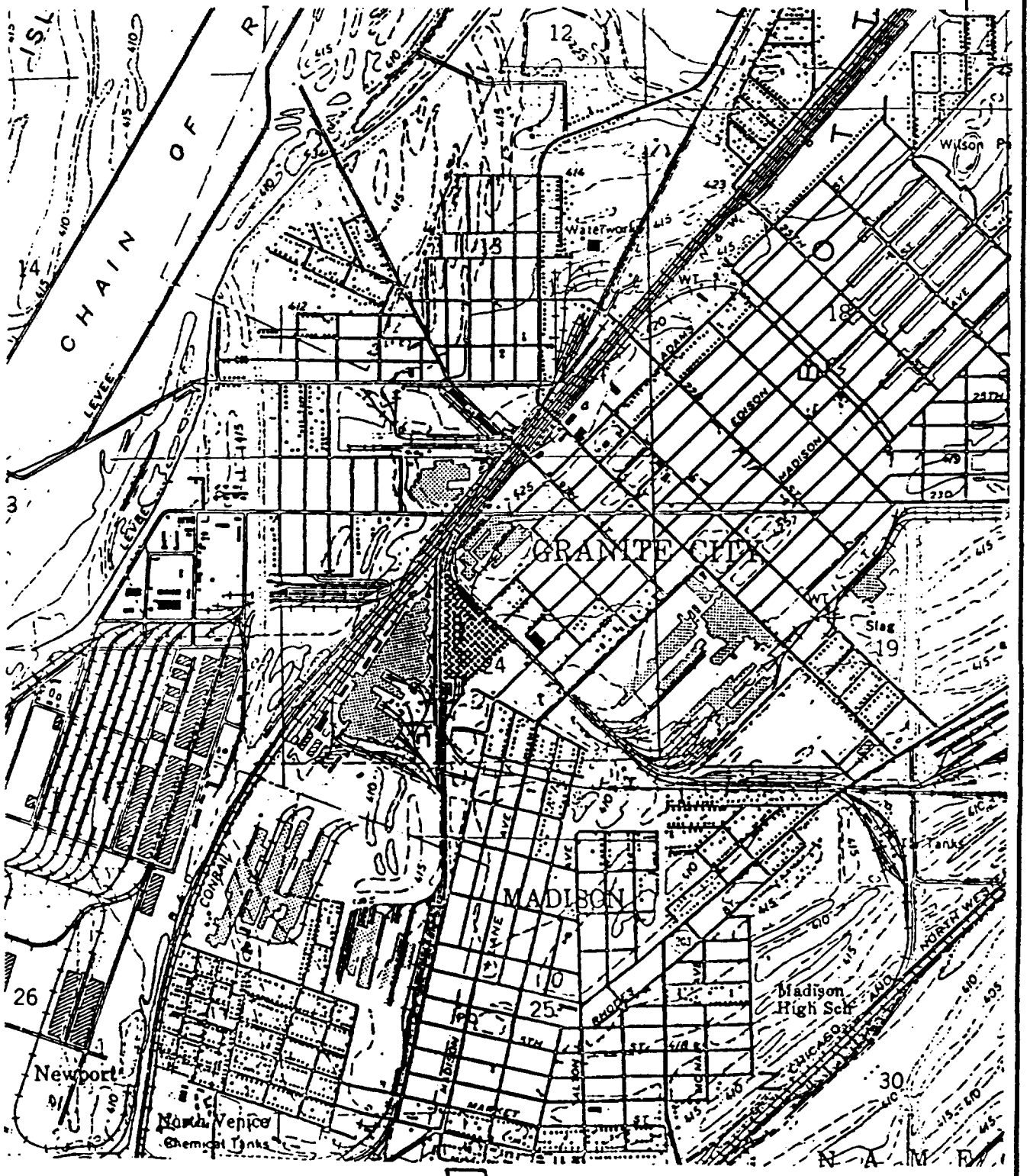
U.S. EPA, Region V
230 South Dearborn Street
Chicago, Illinois 60604
Contact: Brad Bradley, Remedial Project Manager
(312) 886-4742

Granite City Public Library
2001 Delmar Avenue
Granite City, Illinois 62040
Contact: Robert Stack

FIGURE 1

NL INDUSTRIES
GRANITE CITY SITE
GRANITE CITY, ILLINOIS

LOCATION MAP



– PROJECT SITE

NOTE: MAP ADAPTED FROM U.S.G.S. GRANITE CITY QUADRANGLE

QUADRANGLE LOCATION

SCALE

0 1

MILES

Figure 2

Site Plan - Waste Pile

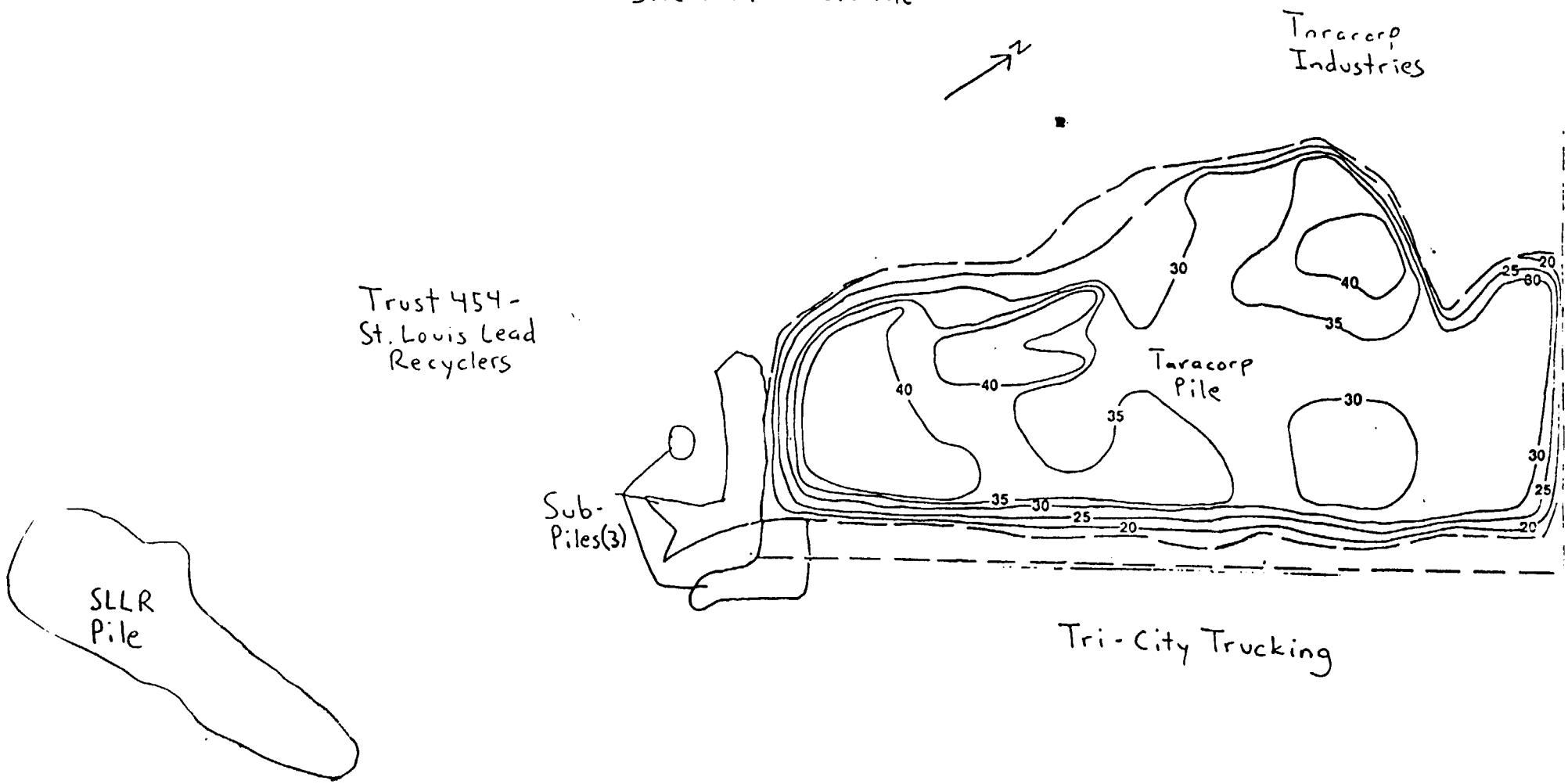
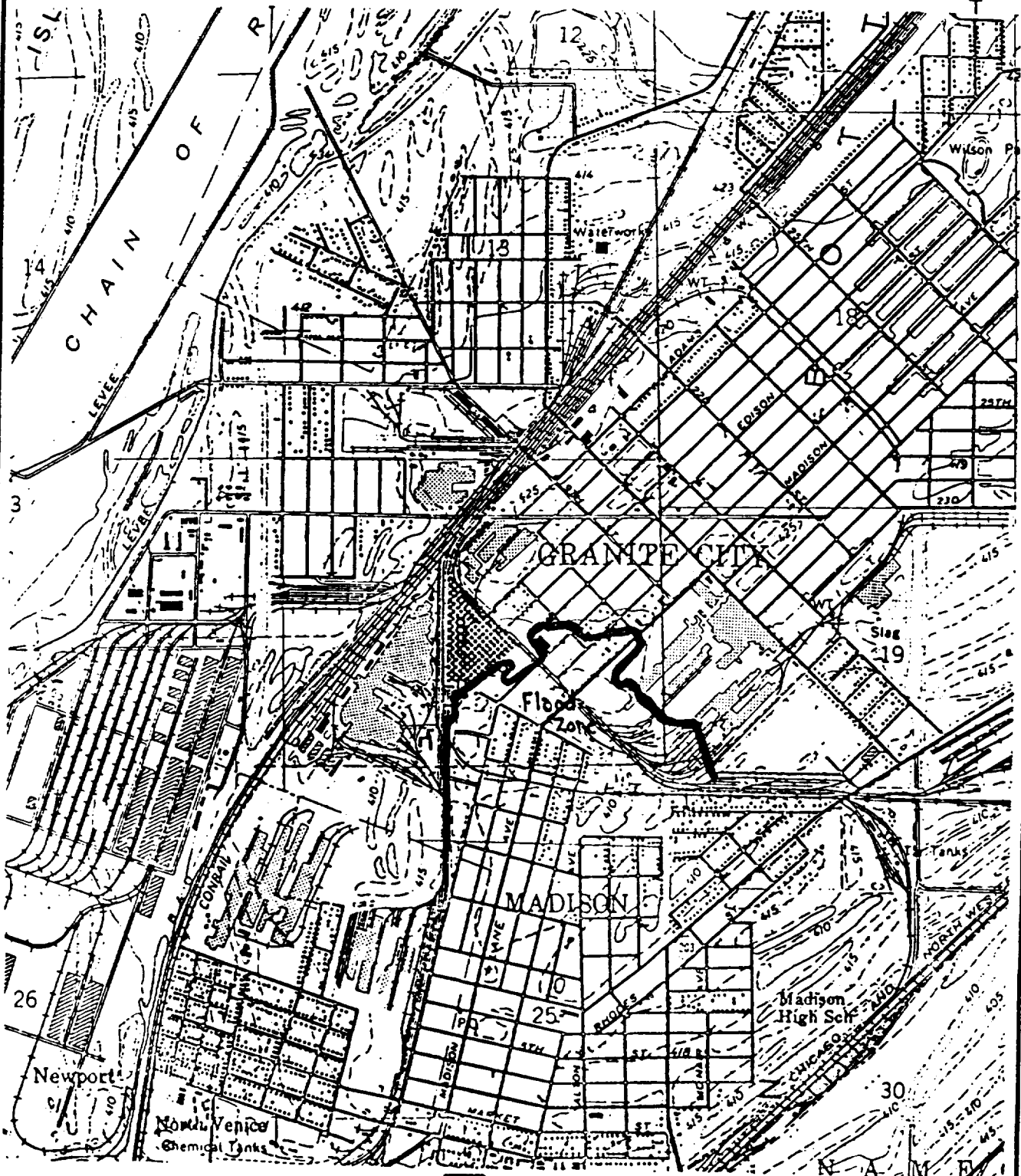


Figure 3

NL INDUSTRIES
GRANITE CITY SITE
GRANITE CITY, ILLINOIS
Flood Plain in the
Vicinity of the Site



– PROJECT SITE

– FLOOD PLAIN BOUNDARY

NOTE: MAP ADAPTED FROM U.S.G.S. GRANITE CITY QUADRANGLE

ILLINOIS

QUADRANGLE LOCATION

SCALE

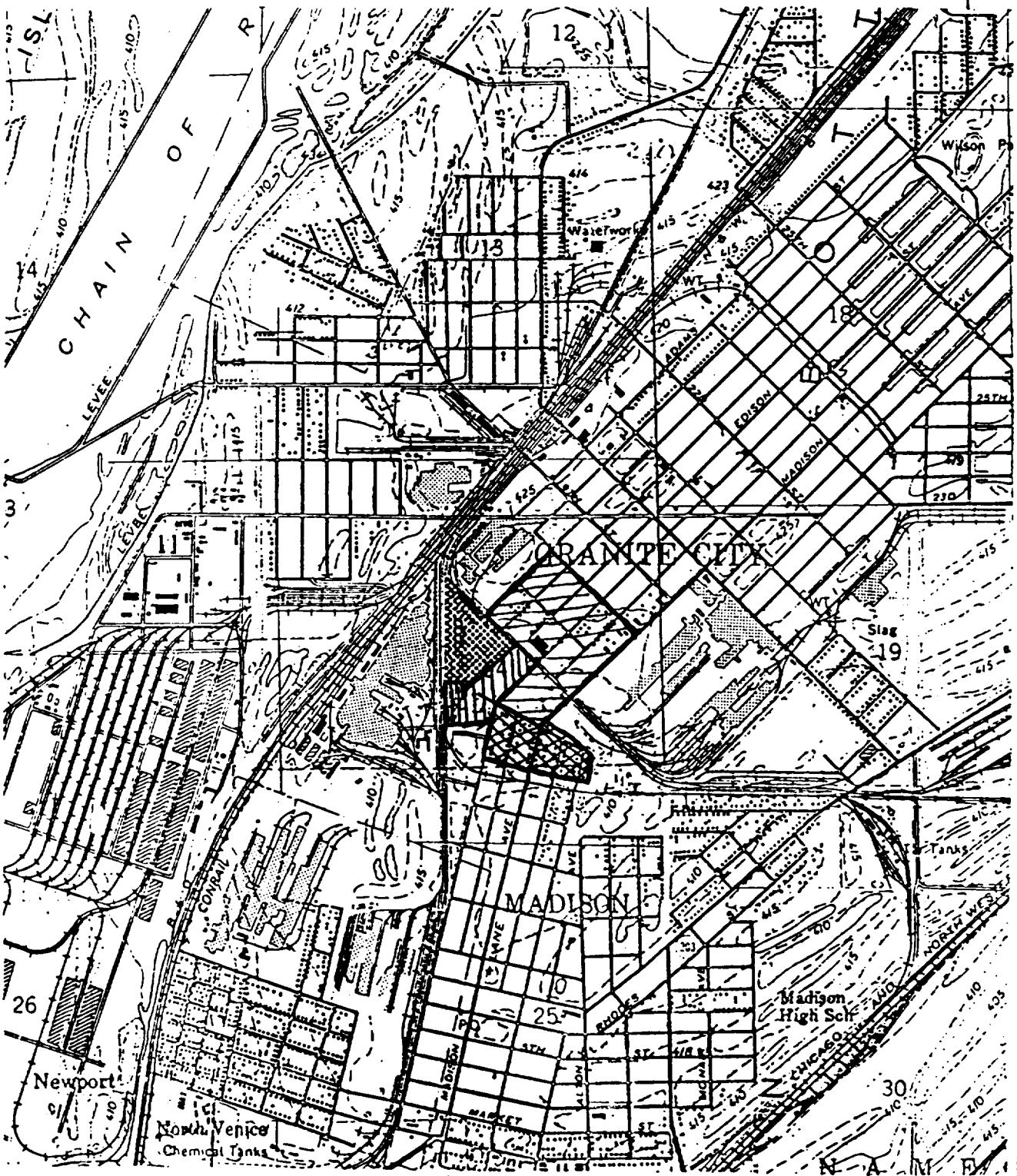
0 1

MILES

Figure 4

GRANITE CITY SITE
GRANITE CITY, ILLINOIS

Areas 1, 2, and 3



- PROJECT SITE
- Area 2
- Area 1
- Area 3

NOTE: MAP ADAPTED FROM U.S.G.S. GRANITE CITY QUADRANGLE

ILLINOIS

QUADRANGLE LOCATION

SCALE

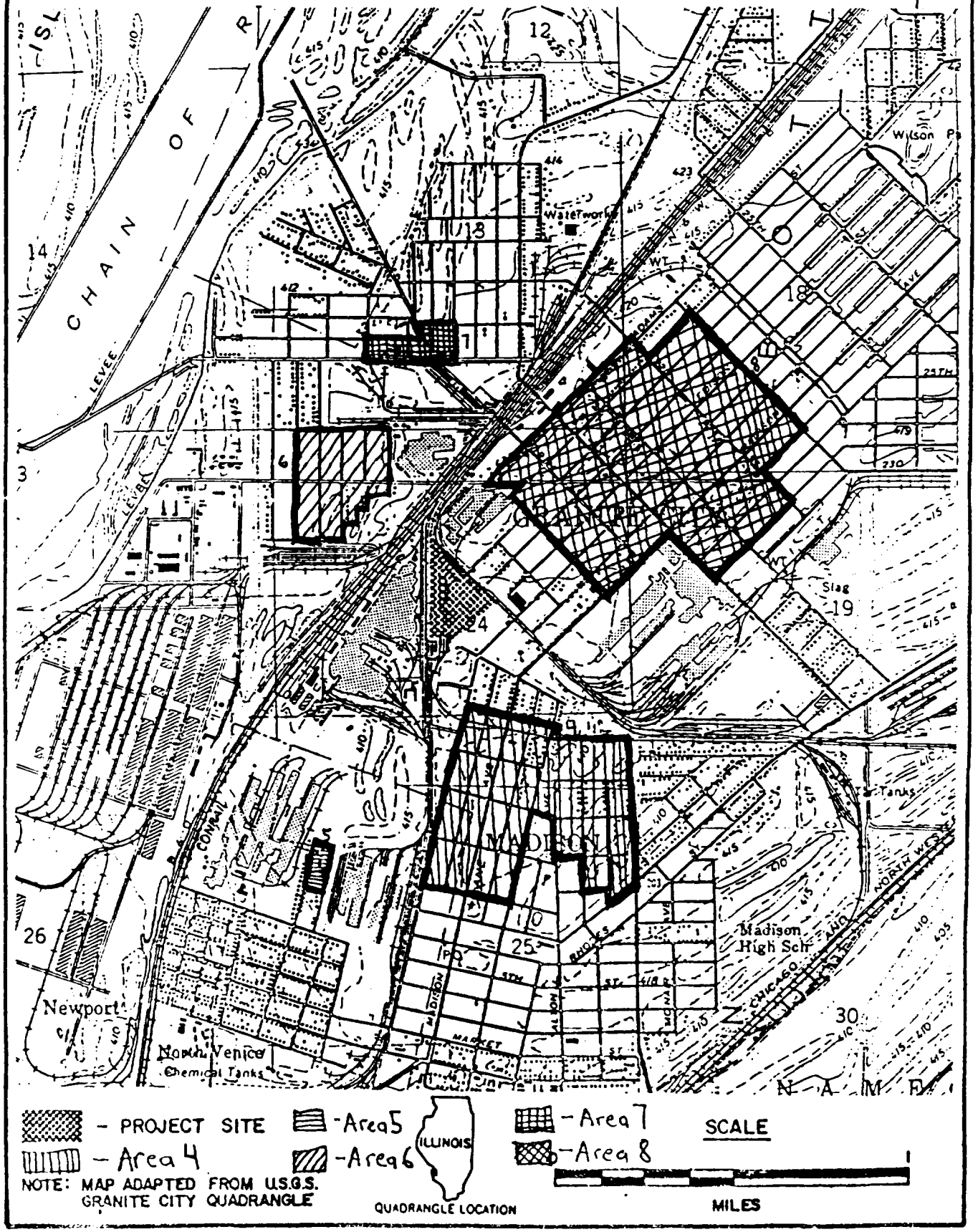
0 1

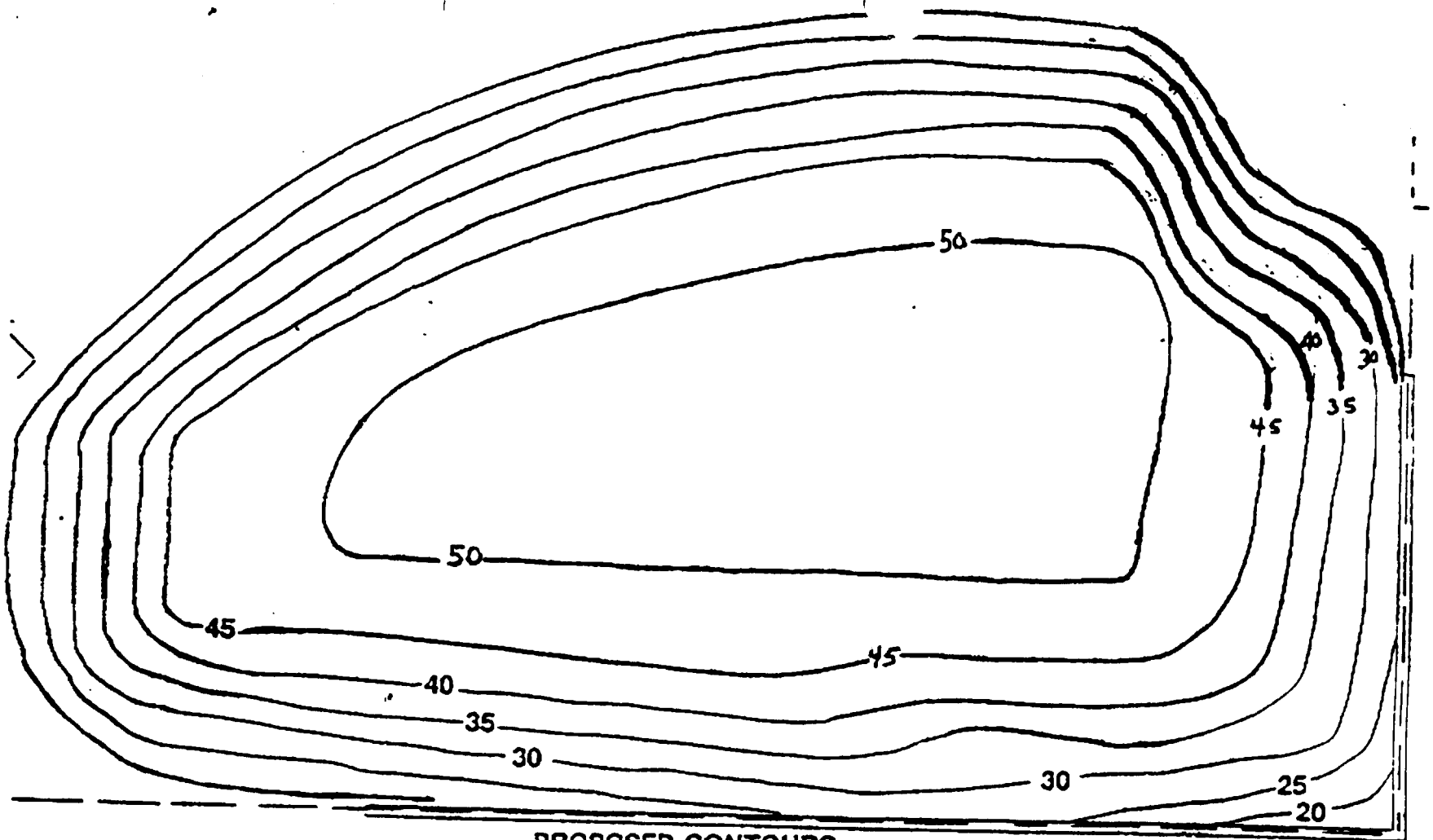
MILES

Figure 5

NL INDUSTRIES
GRANITE CITY SITE
GRANITE CITY, ILLINOIS

Areas 4, 5, 6, 7, and 8

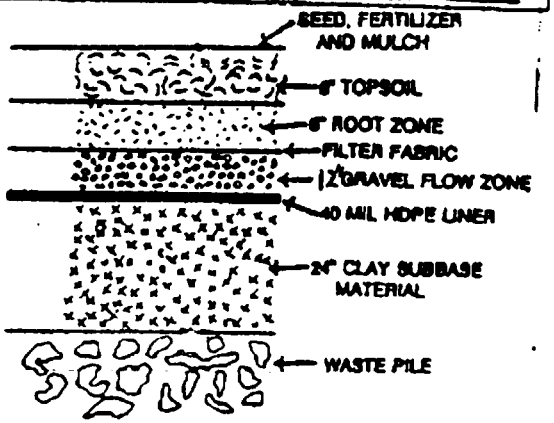




PROPOSED CONTOURS

GENERAL NOTES

1. BENCH MARK - TOP RIM MANHOLE LOCATED AT THE INTERSECTION OF DELMAR AVE. & 16TH ST. (ELEV. 418.42).
2. ADD 400.0 TO SPOT ELEVATIONS SHOWN TO OBTAIN MEAN SEA LEVEL DATUM.
3. EXISTING GRADE SURROUNDING WASTE PILE VARIES FROM 416.0 TO 423.3 FEET.



LANDFILL CAP DETAIL
NO SCALE

APPROXIMATE SCALE: 1" = 75 FEET

Figure 6

ENGINEERING INC

Figure 7
Multimedia Cap Detail